

CLAIMS

What is claimed is:

1. A rear suspension system for a motorcycle comprising:
a pivot pin adapted to engage a motorcycle frame;
a lower member mechanically connected to the pivot pin and extending from the pivot pin to a rear axle assembly, the rear axle assembly being mechanically associated with the rear axle;
an upper member connected to the lower member, the upper member being connected to an air spring assembly; and
wherein the air spring assembly is adapted to be connected to the motorcycle frame.
2. The rear suspension system of claim 1, wherein the air spring assembly is rotatably connected to the upper member.
3. The rear suspension system of claim 1, wherein a vertical member extends between the lower member and the upper member.
4. The rear suspension system of claim 3, wherein the vertical member is attached to an inner portion of the lower member and an inner portion of the upper member.
5. The rear suspension system of claim 1, further comprising a hydraulic damper disposed between the motorcycle frame and the rear suspension system.
6. The rear suspension system of claim 1, wherein the air spring assembly is attached to an upper portion of the upper member.
7. The rear suspension system of claim 1, wherein the lower member includes a hole to accommodate a drive shaft.

8. An air spring assembly comprising:
 - a forward mounting plate;
 - a bladder capable of deforming;
 - a rear mounting plate;wherein the bladder is attached to an outer surface of the forward mounting plate and an outer surface of the rear mounting plate; and
 - wherein the forward mounting plate is adapted to be attached to a motorcycle frame and
 - wherein the rear mounting plate is adapted to be attached to a motorcycle rear suspension.
9. The air spring assembly of claim 8, wherein the bladder is mounted to the forward plate using a hose clamp.
10. The air spring assembly of claim 8, wherein the bladder is made of an elastomeric material.
11. The air spring assembly of claim 8, wherein the bladder is filled with air.
12. A motorcycle comprising:
 - a frame, an engine attached to the frame and a rear suspension;
 - the rear suspension including a lower arm and an upper arm;
 - an air spring system disposed between the frame and the upper arm;
 - the air spring system including an air bladder, the air bladder having a forward bulge portion disposed forward of a front plate.
13. The motorcycle according to claim 12, wherein the forward bulge portion is disposed forward of a rear surface of the front plate.
14. The motorcycle according to claim 12, wherein the air bladder has a rearward bulge portion disposed rearward of a rear plate.

15. The motorcycle according to claim 14, wherein the rearward bulge portion is disposed rearward of a front surface of the rear plate.
16. The motorcycle according to claim 12, wherein the air spring system includes a rear plate and wherein the rear plate can pivot with respect to the rear suspension.
17. The motorcycle according to claim 12, wherein the forward bulge is formed during compression and no forward bulge exists when the air bladder is uncompressed.
18. The motorcycle according to claim 12, wherein the air spring system includes a rear plate and wherein the front plate has a different horizontal position than the rear plate.
19. The motorcycle according to claim 12, wherein the air spring system includes a rear plate and wherein the rear plate has a first horizontal distance from the front plate in an uncompressed condition and the rear plate as a second horizontal distance from the front plate in a compressed condition; and wherein the second distance is greater than the first distance.
20. The motorcycle according to claim 12, wherein the air spring system includes a rear plate and wherein the front plate and the rear plate remain substantially parallel throughout a range of motion of air spring system.